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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/026,776 | 12/27/2001 | Chan Sik Hwang | K-0364 | 9766 |
| 34610 | 7590 | 05/19/2004 | EXAMINER | |
| FLESHNER & KIM, LLP P.O. BOX 221200 CHANTILLY, VA 20153 | | | AUVE, GLENN ALLEN | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2111 | |
| DATE MAILED: 05/19/2004 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/026,776 | Applicant(s) HWANG, CHAN SIK | |
| | Examiner Glenn A. Auve | Art Unit 2111 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-10 and 22 is/are allowed.
- 6) ☒ Claim(s) 1,3,4,11,13-15,20 and 21 is/are rejected.
- 7) ☒ Claim(s) 2,12 and 16-19 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1,3,11,13,15,20, and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee, U.S. Pat. No. 6,671,784 B2

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

As per claim 1, Lee shows a method of arbitrating access to a common bus (e.g. the bus from the modules to the memory in fig. 1), comprising: (a) setting a prescribed standby period for each of a first set of modules; (b) identifying a second set of modules, among the first set of modules, whose actual standby periods have reached the corresponding prescribed standby periods; and (c) allowing each of the second set of modules to send a request to access the common bus (at least in fig. 2A,3, and 4 and at least col.4, line 29 – col.5, line 36, wherein the "starvation intervals" are set for each device and if their standby time elapses the devices can

reset their priority to the highest value and rearbitrate for control of the bus). Lee shows all of the steps recited in claim 1.

As for claim 3, the argument for claim 1 applies. Lee also shows (d) selecting a final module, among the second set of modules, using a selecting rule; and (e) sending an acknowledgment signal, to the selected final module, granting access to the common bus (cols. 4-5 as noted above, the bus is granted to one of the devices which has raised its priority in response to the standby time elapsing). Lee shows all of the steps recited in claim 3.

As for claim 21, the argument for claim 1 applies. Lee also shows that the equivalency of the actual standby period and the prescribed standby period, for each of the first set of modules, indicates that a corresponding standby period has expired (cols. 4-5). Lee shows all of the steps recited in claim 21.

As per claim 11, Lee shows an apparatus for arbitrating access to a common bus, comprising: a standby period storage device that stores a standby period of each of a first set of modules (fig. 2A); an access authorizing block that identifies a second set of modules whose standby periods are determined to be expired and allows each of the second set of modules to send a request to access the common bus (as described in cols. 4-5); and a request storage device that stores the access request made by each of the second set of modules (in cols. 4-5 where at least the arbiter stores the incoming requests). Lee shows all of the elements recited in claim 11.

As for claim 13, the argument for claim 11 applies. Lee also shows that the access authorizing block selects a final module, among the second set of modules, using a selecting rule and sends an acknowledgment signal to the selected final module granting access to the common bus (cols. 4-5 as noted above). Lee shows all of the elements recited in claim 13.

As per claim 15, Lee shows a method of arbitrating access to a common bus shared by a plurality of modules, comprising: assigning a first value and a second value to each of the plurality of modules (figs. 2A and 2B, where each module has a standby time and a priority value set); repeatedly changing the first value until the first value meets a first condition, for each of the plurality of modules (cols. 4-5, the system monitors the standby time); changing the second value and determining whether the second value meets a second condition, for each of the plurality of modules having a corresponding first value that meets the first condition (cols. 4-5, updating the priority based on the standby time elapsing); and transmitting an access request to a bus arbiter, requesting access to the common bus, from each of the plurality of modules having a corresponding second value that meets the second condition (when the priority is changed a new request is issued). Lee shows all of the steps recited in claim 15.

As for claim 20, the argument for claim 15 applies. Lee also shows that each of the plurality of modules is separately assigned variable initial values for the first and second values (at least in figs. 2A and 2B). Lee shows all of the steps recited in claim 20.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as being obvious over Lee in view of Official Notice as to what was well known in the art.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C.

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102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(I)(1) and § 706.02(I)(2).

As for claims 4 and 14, the argument for claims 3 and 13 above respectively apply. Lee does not specifically show that the selecting rule is a round robin method. However Official Notice is taken that the use of a round robin arbitration scheme is very old and well known in the arbitration art as a means for making sure that all requesters are fairly able to use the resource for which arbitration is requested. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a round robin selection method in the system of Lee in order to make sure that access is fairly granted when more than one device asserts highest priority upon the standby time elapsing.

Allowable Subject Matter

5. Claims 2, 12, and 16-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: with respect to claims 2 and 12, Lee does not show that the user is able to set the standby period for the modules. It does not appear that such a limitations would have been obvious either.

With respect to claim 5, the prior art does not show the prescaler value and initial interval value being set in combination with the other elements recited in the claim.

With respect to claim 16, Lee does not show the detailed steps recited and they do not appear to be obvious.

Conclusion

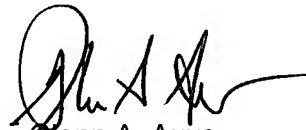
7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The other cited references also show bus arbitration, but they do not appear to show the details claimed.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenn A. Auve whose telephone number is (703) 305-9638. The examiner can normally be reached on M-Th 8:00 AM-5:30 PM, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached on (703) 305-4815. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Glenn A. Auve
Primary Examiner
Art Unit 2111

gaa
May 14, 2004